Gain a child, lose a tooth?

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The most important physiological, hormonal and perhaps also most beautiful changes in a woman’s life occur during pregnancy. And the mouth is one of the main areas involved in these changes. Although gingival inflammation during pregnancy tends to increase—even with correct oral hygiene—pregnancy gingivitis does not normally cause lasting damage to the periodontium. In the post-partum phase, even women with periodontitis who did not receive periodontal treatment during their pregnancy show an improvement in all clinical periodontal parameters. So all is well, right? Unfortunately not.

The research agrees: pregnant women require special oral hygiene instructions, owing to hormonal changes, in order to avoid periodontitis. This is because periodontal treatment can be nerve-racking, time-consuming and bad for their health.

How important is periodontal health for pregnancy really? Its significance is actually increasing with current research findings. Pregnancy gingivitis is one of the most important periodontal diseases. Like other forms of gingivitis, untreated it can lead to periodontitis. No specific type of periodontitis is linked to pregnancy, but periodontitis seems to be a potential risk factor for negative pregnancy outcomes. But how strong are the connections between periodontitis and negative pregnancy outcomes like premature birth, low birthweight and pre-eclampsia really? More on that later.

The legislature has already known for decades about the importance of periodontal health for expectant mothers (e.g. the maternal health passport guides women in Germany and Austria through pregnancy). Federal committees and health insurance companies also require that gynaecologists and dentists speak about the importance of oral hygiene for mother and child in the last trimester as needed. Unfortunately, the reality is that only 5 to 10 per cent of pregnant women worldwide see a dentist during pregnancy. Certainly, socioeconomic status, fear and perhaps also apathy mean that many patients avoid the dentist. Many expectant mothers say they do not have time to go to the dentist several times. “Gain a child, lose a tooth,” as your grandmother used to say.

What is pregnancy gingivitis?

Various periodontal diseases, including pregnancy gingivitis, granuloma gravidarum (pregnancy tumour, also epulis gravidarum) and periodontitis, affect the (oral) health of pregnant women. Pregnancy gingivitis is therefore among the classic gingival diseases. Besides plaque-induced gingival disease, pregnancy gingivitis ranks among the diseases altered by systemic factors. This includes hormonal influences, like puberty, menstruation, pregnancy and diabetes mellitus or even blood disorders.

In appearance and form, pregnancy gingivitis does not differ from classic gingivitis, but it does differ in prevalence. Already in 1933, Ziskin et al. spoke of a 30 to 100 per cent occurrence.1 In more recent studies,2–4 this varied between 38 per cent and 93.7 per cent. Gingivitis has
been found to correlate with hormone level and plaque. In the second and third trimesters, pregnant women generally notice an increase in gingivitis and bleeding, since the body produces the steroid hormones progesterone and oestrogen more strongly. The more plaque, the higher the risk of gingivitis.

The causes of pregnancy gingivitis, however, seem to be more complicated than previously believed. Even small quantities of plaque in pregnant women lead to an excessive inflammatory reaction in the susceptible tissue. Not only does the immune system change, but so do blood circulation and the cell system. The entire oral mucosa prepares for the birth. The practice team must therefore pay particular attention to the dental biofilm. Progesterone and oestrogen directly promote the pathogens *Prevotella intermedia* and *Porphyromonas gingivalis*. Indirectly, the soft tissue is more sensitive to bacteria that reach the oral cavity.

**Does pregnancy gingivitis lead to premature birth?**

Generally, science assumes that periodontal inflammation plays an important role in pregnancy complications. Periodontitis as a chronic inflammation is ultimately caused by a bacterial infection and thus represents a potential source of circulating inflammatory biomarkers. These inflammatory mediators spread throughout the entire body and are related to possible negative pregnancy outcomes. In studies on periodontitis in pregnant women, the occurrence of the disease varied between 0 per cent and 61 per cent.

Clinical studies further suggest that bacteria, like *P. gingivalis*, *Treponema denticola*, *Tannerella forsythia* and *Fusobacterium nucleatum*, from the oral cavity colonise the foetus and the placenta, with blood being the most likely transfer medium. These periodontal pathogens may therefore represent a risk factor for negative pregnancy outcomes, including low birthweight, premature birth and pre-eclampsia (high blood pressure). Actually, there is still no clear proof to support the connection between periodontitis and negative pregnancy outcomes. Some studies indicate that there could be a link. Further studies are needed, however, to understand the complex biological processes. Three facts remain. First, a pre-existing periodontal condition in the woman can exacerbate periodontitis during pregnancy. Second, after the birth, the periodontal status of women with periodontitis improves without active periodontal therapy. However, the disease does not disappear and can even worsen after the birth. Third, pregnancy gingivitis alone does not lead to negative pregnancy outcomes.

**Treatment and prevention**

Whether the mouth is healthy, has gingivitis or even periodontitis, nowadays, organisations and researchers recommend that pregnant women make three visits to the dentist, ideally once per trimester. This way, dentists can advise them comprehensively in the first trimester. The second trimester is suitable for a professional tooth cleaning and, if necessary, periodontitis treatment. The practice team should use the third trimester for consultation on the dental health of the baby. Ideally, prophylaxis should begin for the child during pregnancy. Different studies show how important it is to educate women during pregnancy and right after the birth in order to reduce the risk of caries in children.

In the dentist’s office, pregnant patients should learn everything important about the development of dental caries, routes of infection and nutrition; however, the emphasis here is not just on the information, but also on targeted, preventative therapy. Expectant mothers who become enthusiastic about prophylaxis pass this experience on to their children. This way, prophylaxis for the child, the first primary prophylaxis even before the birth, becomes the focus of dentistry.

**Mechanical and professional plaque control**

Mechanical plaque control has always been the focus of pregnancy prophylaxis. Brushing with a toothbrush with
soft bristles and fluoride toothpaste, and using instruments for interdental care and, if necessary, chemical plaque control are key instruments for the prevention of gingivitis and periodontitis even before pregnancy. That is why, for example, Oral-B recommends electric toothbrushes with oscillating rotations. At the same time, every system of mechanical plaque control is suitable in principle, whether manual or electric, as long as the correct technique is used regularly and with persistence (120 seconds).

In the case of gingivitis, toothpastes with antibacterial agents such as stannous fluoride are beneficial, and mouth rinsing solutions are suitable as additional therapy. For acute gingivitis, patients should use chlorhexidine therapeutically for a short time, best in a concentration of 0.1 to 0.2 per cent or 1 per cent. Different meta-analyses have found that chlorhexidine can be used with confidence during pregnancy. Long-term chemical plaque control is suitable for pregnant women with nausea and poor oral hygiene, particularly in the molar area. Other alternatives, such as tea tree oil and propolis, have not shown any effectiveness in studies.

What to keep in mind with periodontal therapy

If the practice team has to treat pregnant patients for periodontitis, neither has any special procedures to be considered first. Research shows that non-surgical periodontal therapy is safe and sensible during the second trimester. Scaling and root planing are quite possible during pregnancy. Radiographs can be taken and local anaesthesia can be administered without additional risk to the foetus or the mother. Articaine is the agent of choice in this case. Periodontal therapy does not reduce the occurrence of negative pregnancy issues. However, it can lower the frequency of negative pregnancy outcomes in women at high risk of pregnancy complications or who respond better to periodontal treatment.

Modern pregnancy prophylaxis

Professional tooth cleaning as part of modern biofilm management is an indispensable component of gingivitis and periodontal therapy in the context of a prophylaxis session. Professional tooth cleaning, in combination with oral hygiene products and instructions, clearly reduces moderate or severe gingivitis. The second trimester is therefore best suited for professional tooth cleaning. At this point, nausea has usually disappeared and the patient can stay lying down for a whole hour.

An optimal pregnancy prophylaxis also includes nutrition from a dentistry point of view. Here patients should not limit themselves, but enjoy their pregnancy. Nevertheless, patients should forgo acidic foods and beverages. A craving for sour and sweet foods, often in high frequency, also increases the risk of caries or an erosive change in the tooth enamel. In addition, the buffering capacity and rinsing function of the saliva is reduced during pregnancy; the mouth tends to be dry, which promotes the development of dental caries. Even allegedly healthy foods and drinks, like fruits or fruit juices, which are acidic, can quickly damage the tooth enamel.

Speaking of erosion, morning sickness also leads to the production of gastric acid, which can again lead to dental erosion of varying intensity. Toothbrushing should be avoided after an episode. The pellicle needs two hours to reform after vomiting. Helpful means of neutralising are the consumption of milk, cheese and, above all, chewing gum. Instead of brushing right after, antibacterial mouth rinsing solutions and fluoride rinsing solutions are suitable first.

Pregnancy is a major challenge with regard to teeth and gingivae. The main task of periodontal treatment during pregnancy is to improve the periodontal and overall health of pregnant women. Oral hygiene training and nutrition advice reduce plaque and gingivitis and thus periodontitis. With respect to affecting negative pregnancy outcomes, intervention even before pregnancy may be more effective. If the practice team controls the gingivitis and so avoids periodontitis, it has made its contribution to a problem-free pregnancy. In all cases, prevention is better than cure and every tooth counts.

Editorial note: A list of references can be obtained from the publisher.